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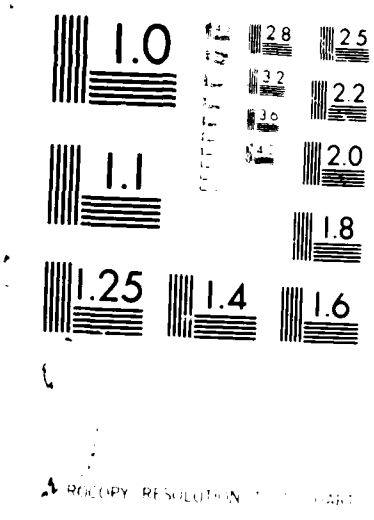
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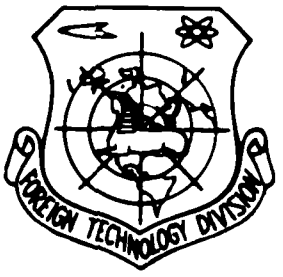
FOREIGN TECHNOLOGY DIVISION

METHOD OF OBTAINING OF FIRE RESISTANT POLYACRYLONITRILE FIBER OR CLOTH FROM IT

by

V. Ye. Kotina, A.A. Konkin, R.M. Kosova



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FTD-ID(RS)T-0614-87 26 August 1987

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METHOD OF OBTAINING OF FIRE RESISTANT POLYACRYLONITRILE FIBER OR CLOTH FROM IT

By: V. Ye. Kotina, A.A. Konkin, R.M. Kosova

English pages: 3

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Incorrect word/phrase: _____

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Foreign page numbers occur in the English text and may be found anywhere along the left margin of the page as in this example:

> In them occurs the state named "night blindness" - hemeralopia, which, according to the current point of view, is a result of damage of the rod-shaped apparatus of the eye.
>
> Page 51.
>
> However, in recent years it has been shown that with the hereditary pigment degenerations in animals the biochemical changes are observed in all celluar elements of the retina.

Remove the sheet with your recommendations from the translation and forward it to:

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic		Transliteration	Block	Italic		Transliteration
	А	*а*	A, a		*Р*	*р*	R, r
	Б	*б*	B, b		*С*	*с*	S, s
	В	*в*	V, v		*Т*	*т*	T, t
	Г	*г*	G, g		*У*	*у*	U, u
	Д	*д*	D, d		*Ф*	*ф*	F, f
	Е	*е*	Ye, ye; E, e*		*Х*	*х*	Kh, kh
	Ж	*ж*	Zh, zh		*Ц*	*ц*	Ts, ts
	З	*з*	Z, z		*Ч*	*ч*	Ch, ch
	И	*и*	I, i		*Ш*	*ш*	Sh, sh
	Й	*й*	Y, y		*Щ*	*щ*	Shch, shch
	К	*к*	K, k		*Ъ*	*ъ*	"
	Л	*л*	L, l		*Ы*	*ы*	Y, y
	М	*м*	M, m		*Ь*	*ь*	'
	Н	*н*	N, n		*Э*	*э*	E, e
	О	*о*	O, o		*Ю*	*ю*	Yu, yu
	П	*п*	P, p		*Я*	*я*	Ya, ya

*Ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

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METHOD OF OBTAINING OF FIRE RESISTANT POLYACRYLONITRILE FIBER OR CLOTH FROM IT

V. Ye. Kotina, A. A. Konkin, and R. M. Kosova

Is known the method of obtaining the fire resistant polyacrylonitrile fiber by heating to 200°C; however, in this case fiber with the low strength characteristics is obtained.

Is proposed the method of obtaining of fire resistant polyacrylonitrile fiber or cloth from it, according to which polyacrylonitrile fiber is subjected to in stages hot working, heating initially at 200°C during 25-30 h. They further raise temperature to 300°C with a velocity of 1.5-2.0° min. After reaching 300°C they raise temperature to 400-475° during 15-25 min. In this case fire resistant material with good mechanical properties is obtained. The processed polyacrylonitrile cloth is not ignited in the flame of burner and has the following strength characteristics: weight 1 m^2 - 200 g; strength on base 38-45 rkm, on the weft 30-35 rkm; elongation on the base and on weft 4-5%.

Processed by this method polyacrylonitrile fiber also does not ignite in the flame of burner and has a strength of 9-12 rkm and an elongation 5-7%.

Example. The unrelaxed polyacrylonitrile fiber or the cloth, manufactured from it, is subjected to hot working in the air medium at 120°C during 1 h.

Temperature rise from the room to 120°C is produced during not less than 30 min. Then they raise temperature with the same speed to 150°C and keep samples at this temperature 1 h. After this, they raise temperature to 200°C and maintain fiber 25-30 h.

The necessary condition is the removal of the gaseous products, isolated in the process of heating; therefore they recommend to conduct the process of heating at 200°C in the current of nitrogen, which contributes to obtaining strong samples with the higher extension at break. After this treatment the fiber or cloth become black. Then fiber or cloth is treated with a gradual rise of temperature to 400-450°C.

The samples of cloth or fiber acquire the properties of incombustibility only on the achievement of temperature 400-475°C, at which they are treated during 1-1.5 h.

Such samples were maintained at 2500°C during 100 h, in this case their strength was changed insignificantly.

Subject of invention.

The method of obtaining of fire resistant polyacrylonitrile fiber or cloth from it with the application of heat treatment at 200°C, is characterized by the fact that, for the purpose of an increase in the heat resistance with the retention of mechanical properties, polyacrylonitrile fiber or the cloth from it is subjected to in stages treatment first at 200°C, and then at 400-475°C.

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